Physico-chemical and quality characteristics of virgin coconut oil – a Malaysian survey

ABSTRACT

A total of 1 0 virgin coconut oil (VCO) samples from Malaysian market were collected and analysed for their physico-chemical and quality characteristics. Two of the samples were produced using MARDIôs technologies i.e. dry and wet processes. The remainders of the samples were produced either through natural fermentation or mechanical process. The analyses were divided based on physico-chemical characteristics and quality characteristics. As for the physico-chemical characteristic, eight types of analysis were performed i.e. relative density, refractive index, saponification value, iodine value, unsaponification matter, specific gravity, slip melting point and fatty acid composition. In addition, six types of analysis were carried out to determine the quality of the VCO. Physico-chemical characteristic analysis of all VCO samples fall within narrow ranges. However, for quality characteristics, some samples showed bad quality oil especially for the free fatty acid and peroxide value. The percentage of free fatty acid obtained from these samples were >0.5% and peroxide value >3 meq/kg. Total plate counts of most samples were zero. In terms of contaminants, copper, lead and arsenic were found to be below detectable levels except for iron. A few samples had high iron content (more than 5 mg/kg) which may enhance oxidative deterioration in the oil.

Keyword: Identity characteristic; Quality characteristic; Virgin coconut oil; Contaminant